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In re: Gunther et al.
Appl. No. 09/658,866
Filed: 09/08/2000
For: METHOD AND SYSTEM FOR DEVELOPING OPTIMIZED SCHEDULES

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PATENT**In The United States Patent And Trademark Office**

Appl. No.: 09/658,866 Confirmation No.: 2936
Applicant(s): Gunther et al.
Filed: September 8, 2000
Art Unit: 3626
Examiner: Rachel L. Porter
Title: METHOD AND SYSTEM FOR DEVELOPING OPTIMIZED SCHEDULES

Docket No.: 023895/258395
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Alexandria, VA 22313-1450

REPLY BRIEF UNDER 37 C.F.R. § 41.41

Applicants appreciate the thorough review of the Appeal Brief as evidenced by the Examiner's Answer. In light of the Examiner's Answer, Applicants submit rebuttal arguments to address the remaining rejections under 35 U.S.C. § 102(b) and § 103(a), as well as clarify arguments previously submitted in the Appeal Brief.

In the Response to Arguments set forth in the Examiner's Answer (p. 6, section A), the Examiner disagrees with the Applicants' assertions that Barlow does not teach or suggest the recitations of independent Claims 1, 8 and 11 relating to generating a plurality of market plans for each of a plurality of markets and then individually determining the profitability of each market plan for each market and that Barlow, instead, only describes the generation of a single modified market plan for each market. In rebuttal, the Examiner relies upon portions of Barlow that disclose that the system uses host airline and airline schedule information to build a worldwide database arrangement of travel services provided by travel providers in all markets of interest (col. 3, lines 55-65), and the global network generation process obtains airline schedule data in order to build an O/D record containing all O/D data, including connecting points, for all flight services offered by airline travel providers in all markets of interest (col. 4, lines 15-32). The Examiner further finds that Barlow discloses that "the generation process occurs for all

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flight services offered (i.e. plurality of market plans) for all markets of interest (i.e. a plurality of markets)," and believes that because "Barlow discloses that the system obtains a set of results, removes some of the undesirable results, and executes others (col. 4, lines 15-20; lines 33-36; Figures 1-2). . . . that multiple solutions/results are provided, not just a single solution as suggested by the Appellant." Finally, the Examiner alleges that "Barlow discloses that the system performs analyses and valuations for several market plans for various individual markets" (col. 5, line 40 – col. 6, line 3).

Applicants respectfully disagree, as Barlow simply does not generate a plurality of market plans for each of a plurality of markets and then individually determine the profitability of each market plan for each market, as recited by independent Claims 1, 8, and 11. In fact, Barlow is directed to using a CRS simulator to make changes in flight schedules and predict the impact such changes will have on the screen display information typically viewed by travel agents (col. 2, lines 8-12). In the Background of the Invention, Barlow discloses that screen presence often affects the sale of flight services and that:

Screen presence is influenced by flight factors such as origin, destination, travel time, type of aircraft, number of stops, number of connecting points and costs. In a given market flights may be displayed in ascending order depending on overall travel time, number of connecting points and number of stops. Thus, changes in the flight factors will have an effect on the carrier's screen presence and correspondingly on its bookings in a given market. Col. 1, lines 28-36.

Thus, Barlow describes a "market" as being associated with a scheduled flight having a specific itinerary for a given O/D. For instance, Barlow discloses that "[t]he screen presence analysis can be performed for a given market or geographical region, by carrier or carrier type, by a particular reservation, or group of reservations, on a system or global-wide basis, or restricted entirely to a specific CRS" (col. 2, lines 63-67). Therefore, although Barlow discloses that the CRS simulator can analyze screen presence and revenue potential for "all markets of interest," Barlow does not disclose generating a plurality of market plans for a market and then individually analyzing each market plan for the respective market as set forth by independent Claims 1, 8 and 11. Instead, Barlow discloses analyzing multiple markets, but not multiple marketing plans for any one market as set forth by independent Claims 1, 8 and 11. The fact that the Barlow system can "sort, pick, choose . . . markets" is irrelevant, as simply rearranging or choosing markets does not

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teach or suggest the generation of a plurality of market plans for a market and the individual analysis of each market plan for a respective market as set forth by independent Claims 1, 8 and 11. The Barlow system is employed to simulate the screen presence in response to a customer flight request to determine how changes in the flight schedule will impact revenue. Accordingly, whether Barlow discloses that the CRS simulator can determine revenue potential in a market, overall market, or combination of markets is also irrelevant, as “[s]creen presence per individual market is calculated [], which allows the determination of average screen presence throughout all markets” (col. 5, lines 55-58), but which does not teach or suggest generating a plurality of market plans for each of a plurality of markets and then individually determining the profitability of each market plan for each market, as recited by the claimed invention.

The Examiner also disagrees with Applicants’ assertion that Barlow does not teach or suggest selecting from the set of market plans for each market the subset optimizing the overall profit of the schedule following the determination of the profitability of each market plan for each market (p. 7, section B), as set forth by independent Claims 1, 8 and 11. The Examiner again relies upon the portion of Barlow that discloses that the system can remove undesirable results or execute others (col. 4, lines 15-20, 33-36) to allegedly disclose “that multiple solutions/results are provided, not just a single solution.” Moreover, the Examiner cites that Barlow teaches a “profitability model” that may consider or manipulate various parameters to determine flight schedules (FIGS. 2, 4-5; col. 2, lines 39-47; col. 5, lines 29-46; col. 6, lines 36-46), where “the series of valuations for each flight service by the travel service providers . . . and the system’s ability to focus on the revenue and costs of a selected group of market plans (i.e. subset) [] address the claimed limitations.”

Applicants respectfully disagree based on similar rationale described above, as whether a series of valuations may be performed (such as by valuing a single market plan for each of a plurality of markets) does not teach or suggest the generation of a plurality of market plans for each of a plurality of markets and then determining the profitability of each market plan for a respective market as set forth by the claimed invention. Additionally, because Barlow discloses that the markets are analyzed on an individual basis, Barlow teaches away from selecting a subset of market plans from the set of market plans to optimize the overall profit of the schedule, as also recited by the claimed invention. As such, in order to consider the impact of a subset of

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market plans, Barlow would analyze each market on an individual basis. This type of system is specifically distinguished in the Background of the present application as sacrificing the efficiency with which various schedule changes can be analyzed.

Furthermore, the Examiner disagrees with the Applicants' contention that Barlow does not teach or suggest selecting a subset of market plans from among the set of market plans that has been generated for each market to optimize overall profit of the schedule while accounting for resources of a travel service provider, as recited by independent Claims 1, 8, and 11 (p. 8, section C). The Examiner finds that "the current claim language does not recite any guidelines or limitations to explain how the claimed invention (system or method) accounts for the resources of a service provider. (e.g. fleet/inventory assessments; customer demands)." Consequently, the Examiner believes that the consideration of "account flight service offered by a given travel provider based upon market size, and market share" by Barlow (col. 3, lines 46-59; col. 5, lines 61-65) discloses "resources of a service provider" of the claimed invention.

Again, Applicants respectfully disagree, as Barlow discloses that "[t]he average screen presence [] takes into account the *importance* of a given flight service to the travel provider by considering the market size and average market revenue for a given flight service." As such, Barlow discloses that market size and average market revenue are used to determine the importance of a flight service, which is distinctly different than accounting for the resources of a service provider. Applicants fail to understand the correlation between the importance of a flight service and the resources of the travel service provider, where the resources are taken into consideration to ensure that the service providers can perform the selected subset of market plans as in the claimed invention. Moreover, the fact that Barlow discloses that O/D information, CRS display rules, market share information, frequency of requests for each request time, and the host airlines' share of bookings on a CRS also bears no relation to the resources of a service provider. In addition, this particular data is not being considered to select a subset of market plans from a set of market plans to optimize overall profit of the schedule, as recited by independent Claims 1, 8, and 11.

Additionally, the Examiner rejects the Applicants' argument that the use of a mixed integer problem to solve the optimization problem of Claim 8 is not known to those of ordinary skill in the art (p. 9, section D). The Examiner suggests that the Applicants were attempting to

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argue that independent Claims 1 and 11 also recite the use of a mixed integer problem; however, independent Claim 8 was independently argued in the Appeal Brief as a further distinction over Barlow. In any event, the Examiner also believes that the current scope of Claim 8 fails to recite the distinctions set forth in the Appeal Brief and that Applicants are attempting to read limitations into Claim 8. In contrast, the discussion regarding the mixed integer problem of independent Claim 8 provided by the Appeal Brief was merely to evidence that those of ordinary skill in the art would clearly understand and appreciate the use of a mixed integer problem when properly considered in light of the specification and, in particular, Appendix B (see MPEP § 2111.01: "words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification").

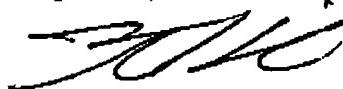
Moreover, the Examiner argues that Barlow discloses an optimization problem used to maximize revenue. But, Barlow nowhere discloses an optimization problem to be solved. Rather, Barlow simply discloses the use of a profitability model to analyze the impact of schedule changes on potential revenue – and there is simply no motivation or suggestion to employ a mixed integer problem to solve the profitability model, as recited by independent Claim 8. In fact, Barlow only discloses that "[t]he present invention allows the air carrier to maximize revenues for a given flight based on the best screen presence for each connecting point in the flight. The airline carrier may then schedule a flight service comprising the most desired connecting points as requested by customers and thereby maximize its overall revenues along the entire flight path" (col. 2, lines 42-47). Therefore, Barlow only discloses that an air carrier can use the information provided by the CRS simulator to subsequently make decisions that maximize its revenue. As such, Barlow does not teach the use of a mixed integer program to optimize profit for a subset of market plans, as set forth by independent Claim 8. In addition, Barlow clearly would not enable one of ordinary skill in the art to utilize a program to solve such a problem as there is no teaching or suggestion to utilize a mixed integer program to do so. At most, Barlow determines the profitability of each market, but the claimed invention goes further to recite the selection of a subset of market plans optimizing overall profit of the schedule.

As such, it is apparent that none of the cited references, taken alone or in combination, teaches or suggests independent Claims 1, 8, and 11. For the forgoing reasons as well as for the

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additional reasons set forth in the Appeal Brief, Applicants submit that the rejections of Claims 1-17 under 35 U.S.C. § 102(b) and § 103(a) are overcome.

Respectfully submitted,



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